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### **ABSTRACT OF THE DISCLOSURE**

One aspect of the present invention relates to a method of fabricating a polymer memory device in a via. The method involves providing a semiconductor substrate having at least one metal-containing layer thereon, forming at least one copper contact in the metal-containing layer, forming at least one dielectric layer over the copper contact, forming at least one via in the dielectric layer to expose at least a portion of the copper contact, forming a polymer material in a lower portion of the via, and forming a top electrode material layer in an upper portion of the via.